



Date of Application, 8th July, 1902—Accepted, 18th Sept., 1902

COMPLETE SPECIFICATION.

"An Improved Collapsible Ambulance Stretcher"

I, EMANUEL KOTTUSCH, Constructor, of 19 Schoenthalstrasse, Zurich, Switzerland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to a collapsible stretcher of a kind in which the longitudinal sides of the carrying frame consist of standards connected by movable joints made after the style of the so called "Lazytongs". Several kinds of such stretchers are known.

10 The object of the present invention is to improve these stretchers and to obviate certain disadvantages which have presented themselves.

Essentially this invention consists of an elaboration of the cross connections which connect the side frames (consisting of the lazytong sections) in order to impart to the stretcher the necessary stiffness.

15 These cross connections are not lazytongs but constitute a folding connection of partly straight and partly angular levers arranged in such a manner that when opened out for use they form a row of stiff frames (after the style of bed frames) and when collapsed they fold into small compass, and, at the same time, ensure that the lazytong parts of the side frames and of the lower side, rest within a stiff frame so that they are not liable to be warped or bent during transport.

20 This, and the stiffness of the frame-work when opened out for use, constitute features of great importance, for, where these characteristics are wanting, it has been found that, through the bending of the lazytong rails, troublesome measures have to be taken which entail loss of time and render the opening out of the stretcher difficult so that in war time and when accidents happen the practical
25 value of the stretcher is considerably diminished and delay is involved for the injured and sick, which, in certain circumstances, may have serious and far reaching injurious consequences. Further, when wounded are being transported and there is a want of stiffness in the frame work of the stretcher, the stretcher canvas flaps up and down violently and the wounded are shaken and sometimes,
30 if the ground is very rough, are even thrown against the bottom sections and severely shaken and may suffer concussions which may prove very detrimental to a speedy cure. The collapsability of the frame-work is such that the whole stretcher can be folded up and carried (like a haversack) on the back of one man.

35 As the side standards of each frame are provided with guide ways in which are guided parts (tongues and pins) connected with the lazytong sections it follows that when the stretcher is opened out the ends of the lazytong sections are properly guided in the frame standards.

40 In order to obtain rigidity combined with lightness all the bearing parts are made of a light and hard wood (ash wood) which rests in a trough-shaped steel frame which is closed on the trough side by a flat steel plate and the whole is rivetted together by means of rivets inserted at short intervals apart. This ensures a stronger and stiffer construction than could be obtained if the whole frame-work were made of steel or even of a metal of light specific gravity, such
45 as aluminium for instance, whilst the weight is not increased.

Referring to the drawings which illustrate my improved stretcher:—

Fig 1 is an end view of the stretcher as it appears when opened out ready for use.

Fig 2 is an end view of the same when folded up.


60 Fig 3 is a partial side elevation of one end of the stretcher when opened out.

[Price 8d.]

Kottusch's Improved Collapsible Ambulance Stretcher.

Fig 4 is a plan of Fig 3.

Figs 5, 6 and 7 are separate illustrations of a lazytong section showing the formation of this and the other parts of the frame.

The stretcher frame consists of a number of jointed cross-frames 1 each of which is made up of two  shaped angularly bent bars connected at the centre 5 with each other by movable joints and to the side standards 2 or 3 by the pivots 4. The four side standards 2 of the two end cross-frames and the side standards 3 of the inner cross-frames have an angular cross section (see Fig 4). The bars of the cross-frames 1 are jointed at one side of the standards whilst the lazytong sections 6 (constituting the sides of the stretcher) are jointed by means 10 of pins 5 to the other side. These lazytong sections 6 are mutually movable on the pivot pins 7.

The cross-frames 1 are connected with one another by the jointed links 8 which consist of flat steel bars and these bars are connected together by the pivots 9 and one bar of each link carries a stop pin 10 which rests against the 15 other bar when the lateral lazytong sections 6 are fully extended.

The ends of the lazytong sections are guided by steel tongues 11 which are secured to the lower pins 5 (see Fig 3) and move in lateral guides 12 fitted to the side standards 3. When drawing out the cross-frames and thereby extending the lazytong sections 6 the steel tongues 11 work in the guides of the standards which 20 are thereby always retained at equal distances apart from one another so that the canvas 14 is stretched uniformly taut. The rings 13 of the canvas are hooked on to the hooks 15 of the side standards 2.


The side standards 2 of the two end frames instead of having a guide for the steel tongues are each provided with a slot 16 (Fig 3) for guiding the stop pin 17 25 of the last lazytong section.

The side standards 2 of the two end frames are provided with handles 19 which are movable on the pin 18 and are used for the purpose of drawing out and carrying the stretcher. These handles have an angular form so that they may be folded up alongside of the rails 2 when the stretcher is collapsed (see 30 Fig 2). When opening out and lifting the stretcher the hook 20 catches against a stop bolt 21 (Fig 3) so that the handles 19 cannot be raised beyond the proper position.

The side standards 2 of the stretcher end shown at Figs 3 and 4, which is the end where the head of the wounded person lies, have eyes 22 (wanting on the 35 other end frame which is not shown) in each of which is carried a rod 23 jointed, at this end, to the last lazytong section 6 at the bottom pin 17. This rod 23 is of such length that, when the stretcher is being drawn out, it projects a little at the top (Figs 1 and 3) where it is provided with a hook 24 into which may be inserted the ring 25 of a fold or flap 26 formed in or on the stretcher canvas 14 40 at its end. By fastening the rings 25 to the hooks 24 the flap is directed upwards at a slant from the rest of the horizontally stretched canvas and thus forms a raised support for the head of the wounded or sick person.

As each rod 23 is connected with the lazytong section 6 it moves back when the stretcher is being folded together which is a necessary arrangement in order 45 to admit of the stretcher being folded up when not in use as shown in Fig 2.

When the stretcher has to be folded together after use the rings 13 and 25 of the stretcher canvas 14 and the head rest 26 are unhooked and the cross-frames consisting of the parts 1 and 2 and 1 and 3 are pushed towards each other. On the handles 19 being released these return into position through their own weight. 50

The side standards 2 and 3 of all the frames are then turned round in the direction of the arrows into the position shown in dotted lines at Fig 1 so that they rest inside the  shaped bars 1 which are then folded up towards each other as shown in Fig. 2. All the movable parts then rest inside the bars 1 which form a box-like frame and the parts are thus protected as far as possible against 55 knocks, etc, during transport.

All the parts of the stretcher, with the exception of the steel bars 8 and


Kottusch's Improved Collapsible Ambulance Stretcher.

tongues 11 and all the pins, are constructed as shown in Figs 5, 6 and in full size in Fig 7 (these views show a lazytong section 6 in side view and section), that is to say, they consist of a wood block 27 (ash wood being suitable) resting in a trough-shaped steel frame 30 and covered by a steel plate 28. The connection
 5 is made by rivets 29 inserted at intervals. Where the lazytong sections 6 or the other parts are rounded off or catch into one another the trough-shaped steel frame 30 is left open so that at these parts (see Fig 6 top) the wood 27 is visible, whereas, at the other parts, it is completely encased in steel.

The pins holes 31 (Fig 5) are bored through the steel casing and the wood
 10 core.

This method of construction secures the greatest rigidity of the bearing parts and parts in other ways liable to bend combined with the greatest possible lightness and ensures an uninterrupted and safe use of the stretcher whilst enabling it to be easily carried. These are specially important features for
 15 the ambulance service in time of war.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. A folding stretcher for the transport of sick and wounded having side frames
 20 constructed after the style of the lazytongs and characterized by the features that the cross frames, which at the sides are connected by the lazytong sections, consist of jointed  shaped bars (1) which are pivotted to the side standards (2, 3) connected with the lazytong sections (6) in such a way that when opened out for use these cross-frames give a rigid cross connection for the lazytong sections
 25 on which the stretcher canvas is hung whilst, when the stretcher is collapsed, its parts rest within a frame formed by the said bars (1), substantially as hereinbefore described.

2. The method of constructing a stretcher such as claimed in Claim 1 in which the lazytong sections are guided at their ends in the side standards (2 or 3) of the
 30 cross frames, the centre standards (2) having guides (12) for steel tongues (11) jointed to the lower pins (5) of the sections (6) whilst the end pins (17) of the last sections (6) are guided in the slots (16) of the end standards (2), substantially as hereinbefore described with reference to the drawings annexed.

3. The method of constructing a stretcher such as claimed in Claim 1 in which
 35 the handles (19) are pivotted to the end standards (2) and the rods (23) for the raised head rest of the stretcher canvas are pivotted to the pins (17) of the last lazytong section (6) for the purpose of enabling all the parts, when folded together, to fold within the frame formed by the bars 1, the handles (19) placing themselves alongside of the end standards (2) and the rods (23) moving back
 40 through eyes (22) in these standards, substantially as hereinbefore described with reference to the drawings annexed.

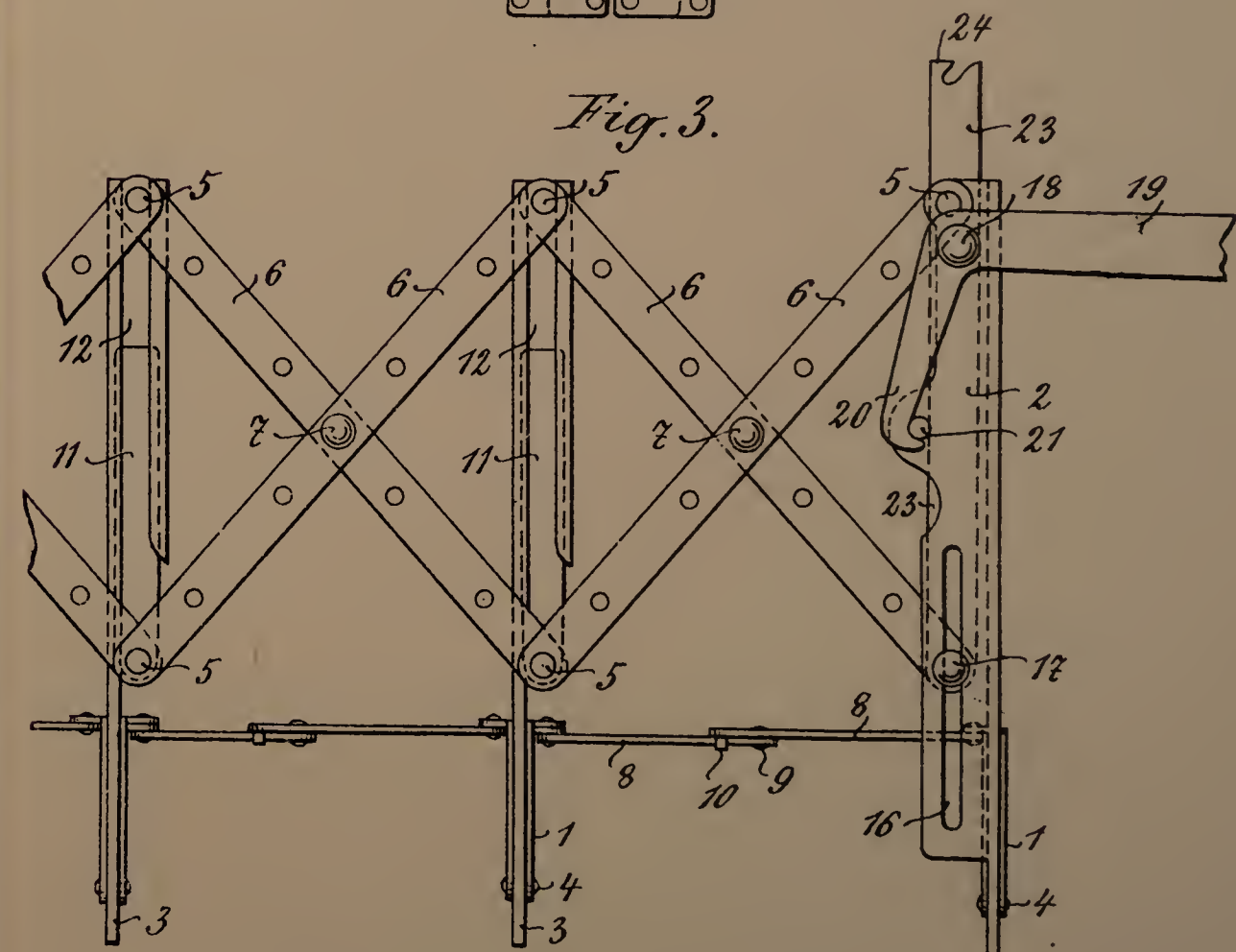
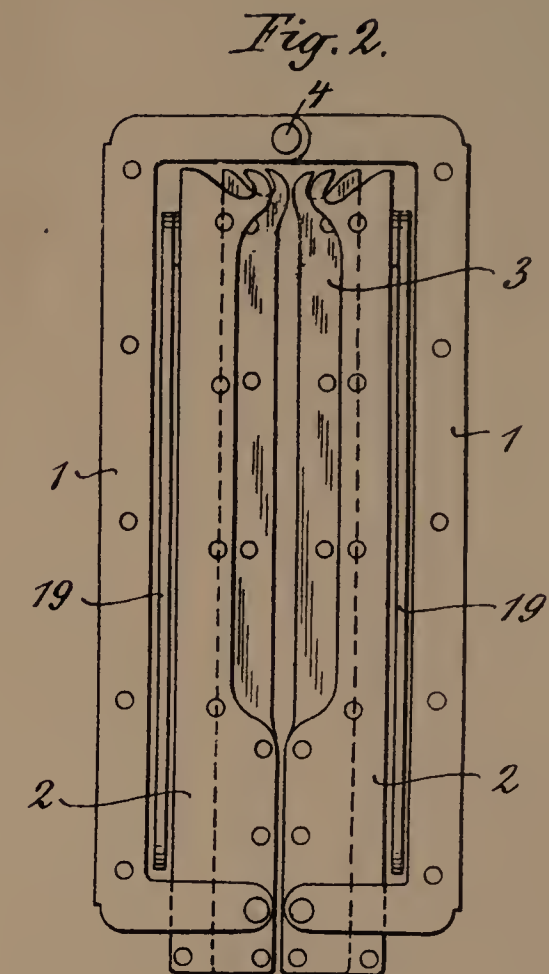
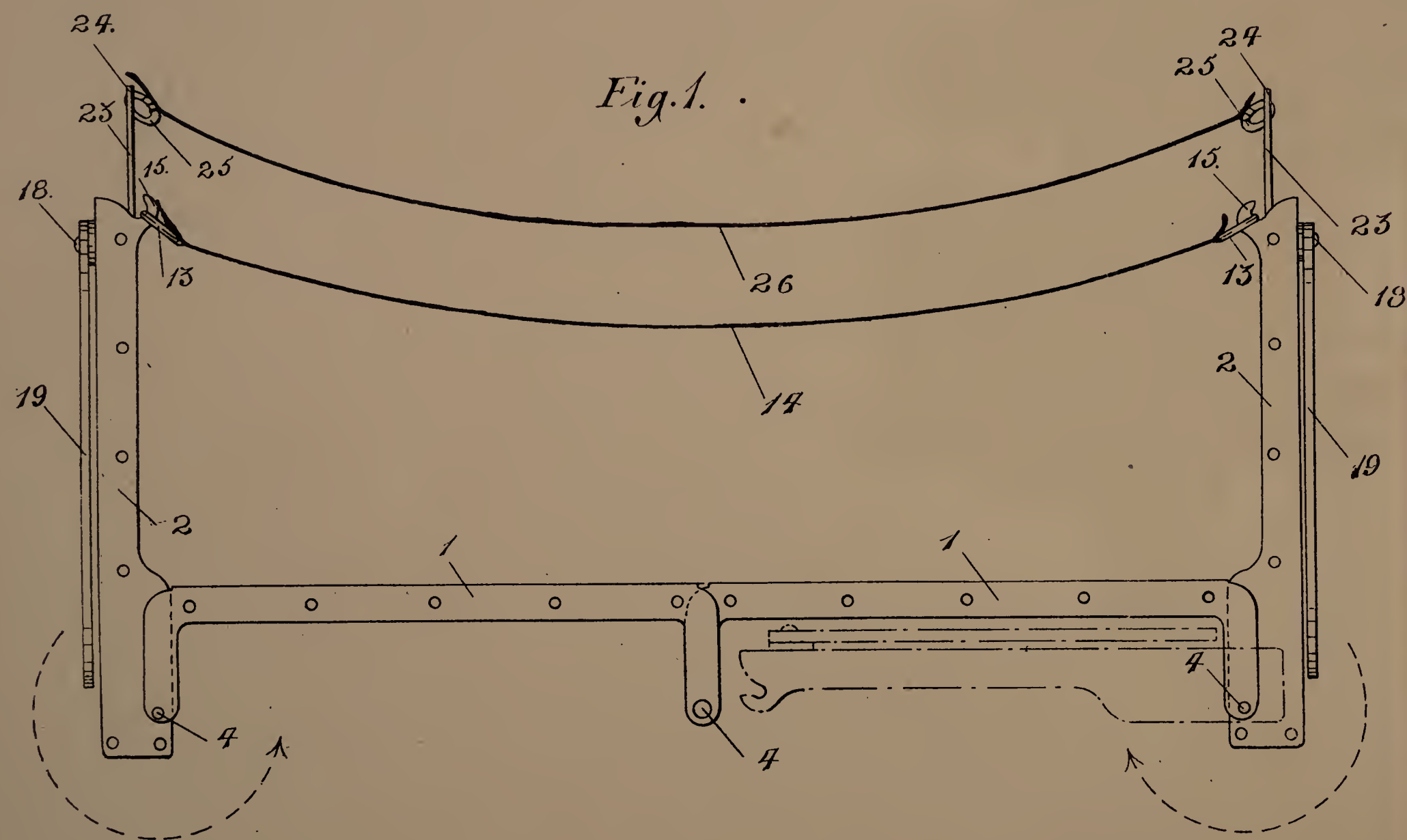
4. The method of constructing a stretcher such as claimed in Claim 1 in which all the parts, with the exception of the steel bars (8 and 11) and the pins and pivots, consist of a wood core (27) resting within a steel casing made up of a
 45 channel frame (30) and a cover plate (28), with which the wood core is connected by rivets (29) for the purpose of securing the combination of extreme rigidity with lightness of the parts composing the stretcher, substantially as hereinbefore described with reference to the drawings annexed.

5. A stretcher having all its parts constructed, arranged and combined together
 50 substantially as hereinbefore described and shown on the drawings annexed.

Dated this 7th day of July 1902.

H. D. FITZPATRICK,
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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 4.

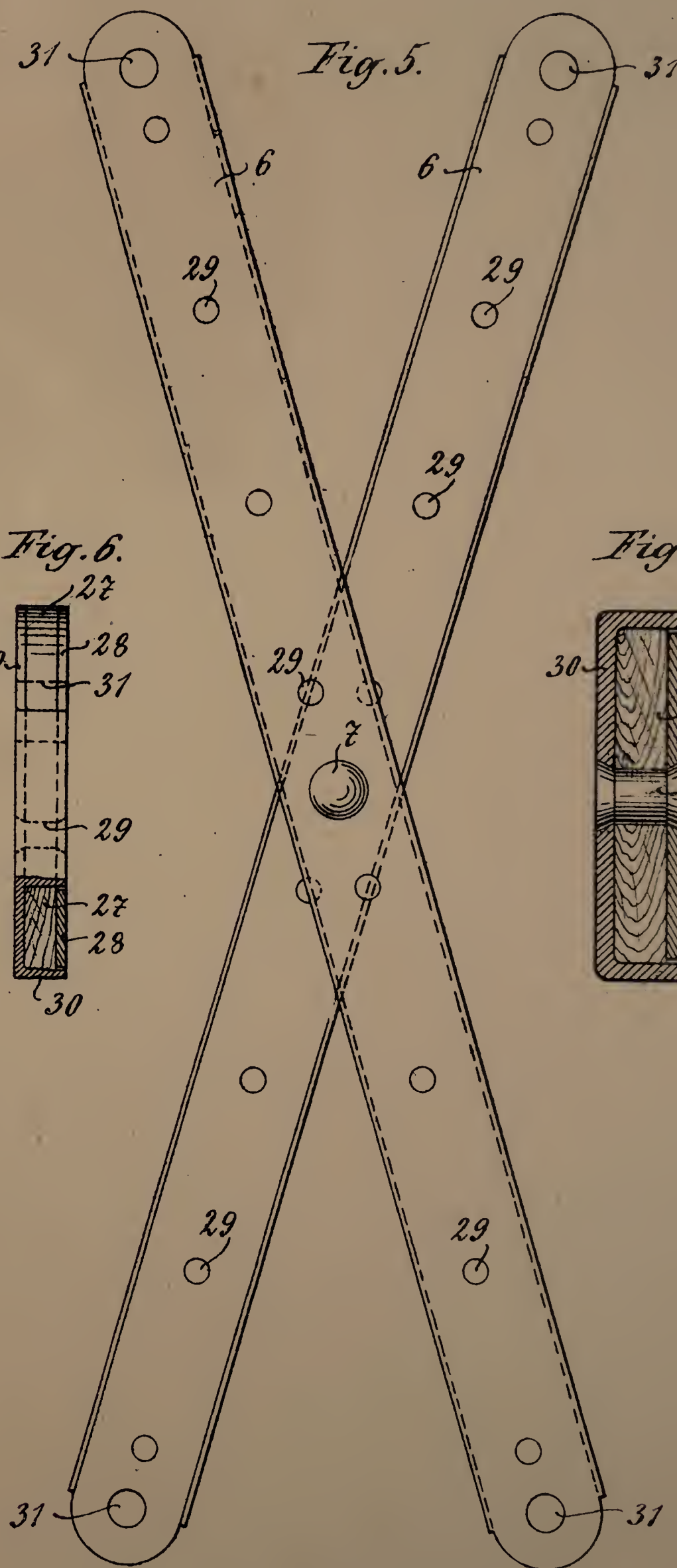
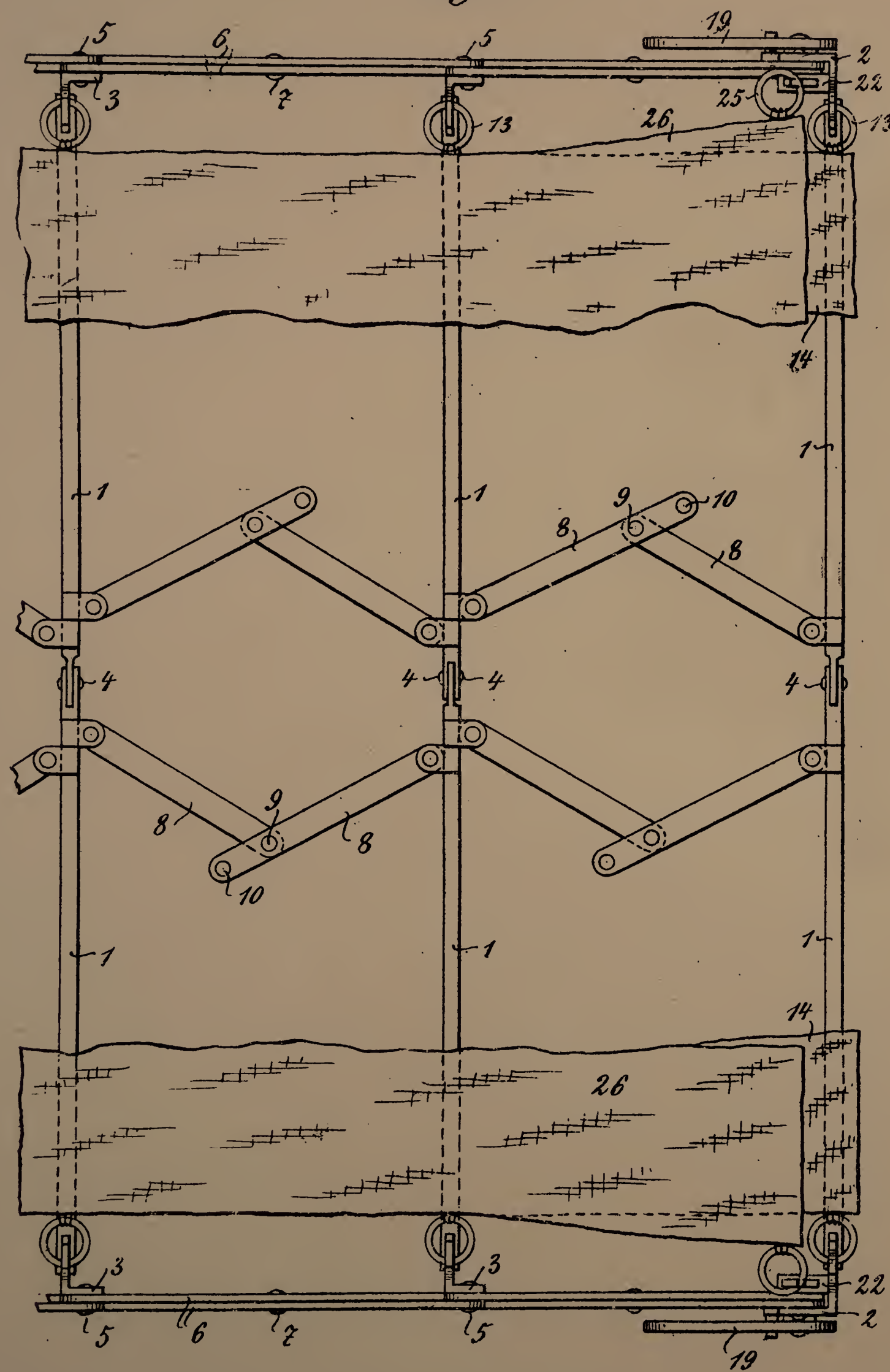


Fig. 6.

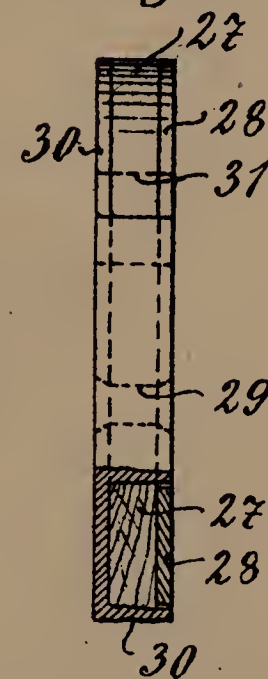
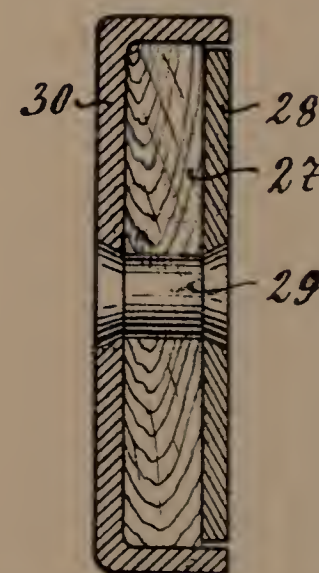


Fig. 7.



[This Drawing is a reproduction of the Original on a reduced scale]

